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EXAMINER	
KAO, JUTAI	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/554,047	VASSEUR ET AL.	
	Examiner	Art Unit	
	JUTAI KAO	2473	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 January 2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3,4 and 7-46* is/are pending in the application.

4a) Of the above claim(s) *33-46* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1, 3-4 and 7-32* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

Amendments filed on 01/20/2010 change the scopes of the previously presented claims. New grounds of rejections are applied to the claim using previously cited references and the action is made FINAL.

Response to Arguments

1. Applicant's arguments with respect to claims 1, 3-4, and 7-32 have been considered but are moot in view of the new ground(s) of rejection.

Regarding claim 1, the applicant first argues that Inderieden does not teach the step of “starting from a first set of paths related to a first routing protocol and determining a second set of paths related to a second routing protocol" (first paragraph of page 11 of the applicant's remark). However, as previously shown, Inderieden discloses the following in paragraph [0007].

> *[0007] Multi-protocol routing architectures increase the scalability, efficiency and reliability of a routing system by providing a plurality of different routing protocols, each of which provide candidate routes to a centralized routing information base (RIB).* ***A RIB manager then selects the route that is to be actively employed for a given end destination and installs that active ("best") route into a forwarding engine. When a new route is provided to the RIB by one of the routing protocols, the RIB manager considers anew which route should be made active, taking the newly added route into account.*** *This process is sometimes referred to as "active route selection." In conventional multi-protocol routing architectures, the RIB is a central shared resource for the protocols to use to store all of their candidate routes and all of the per-protocol*

attributes for each respective route. Such a system is inefficient and unreliable as a very large number of routes must be maintained in the central RIB, and if the central RIB goes down, all of the protocols are effected.

As shown in bold above, the RIB manager first selects a route, and starting from that route, when a new route is provided, the active route is re-selected taking the new route into account. The newly selected active route is then considered a second route being determined starting from the original active route (first route). Therefore, Inderieden does disclose the claimed feature of "starting from a first set of paths related to a first routing protocol and determining a second set of paths related to a second routing protocol".

Next, the applicant argues that Inderieden does not disclose the feature of "taking into account of set of constraints associated with the second routing protocol to determine the second set of paths from the first set of paths" (see third paragraph of page 11 of applicant's argument). However, as previously shown, Inderieden discloses a route "preference" value associated with each route updates of new routes (see paragraph [0035] of Inderieden). The preference value of the second set of paths associated with the second protocol is considered as the claimed "constraints" associated with the second routing protocol.

The applicant also argues that Inderieden and Wen do not disclose the claimed feature of the second set of paths that "emulates a fraction of traffic carried of traffic carried on said paths in said first set of paths". However, as previously shown, Wen discloses a 1+1 protection system that sends the same traffic on the active path and the protection path. As suggested in the previous action, wherein the first set of paths and

the second set of paths may be used as the active path and the protection path that carries the same traffic. Since the same traffic is carried by the two sets of paths, at least a fraction of traffic carried by the two paths emulates one another.

Regarding claim 7, the applicant argues that routing between a source and a destination, as taught in Inderieden, can take many different paths. However claim 7 only require that the routing used is "similar". As previously suggested, the routings are similar in that the same source and same destination are used. Since the claim does not require how "similar" the routings need to be, the different paths having the same source and destination taught in Inderieden are considered “similar”, as required by the claim.

Regarding claims 8-9, the applicant argues that the “preference values” are not constraints related to a second set of paths and used in determining a set of paths. However, the preference values are associated with each of the candidate paths and the preference values of these candidate paths are used to determine the new path to be selected as the active path (the second path). Therefore, the preference value of the path that is eventually selected is the constraint associated with the second path.

Regarding claim 15, the applicant argues that Harshavadhana describes how a parameter is used to limit the maximum number of paths and claimed that such teaching teaches away from the claimed element of constraints comprising “a maximum number of paths between source-destination node pairs”. However, the limit of the maximum number of paths is the “maximum number of paths”. Without the limit, there

would be no maximum number of paths since the number would be infinite. Therefore, the claim is not persuasive and the current rejection is maintained.

Regarding claim 16, the applicant argues that Prager does not teach the claimed element of “a fraction with constrained integer numerator and denominator”. However, as previously shown, Prager teaches expressing the load balance value using “a ratio of a numerator and a denominator” in paragraph [0022]. And as previously indicated in the office action, expressing ratios having a numerator and denominator can always be expressed using integers.

Regarding claims 17-20, the applicant argues that Gawlick does not teach the claimed feature of "to determine a second set of paths from a first set of path". However, as previously shown in the office action, the argued portion of the claim is rejected under Inderieden instead of Gawlick. In addition, Gawlick also teaches using a generate and test search algorithm or an optimal search algorithm as shown by previous rejection of claims 18-19.

Regarding claims 22-23, the applicant argues that Dull does not disclose how the symmetric solutions are broken randomly. However, as previously shown, Dull teaches how equal cost paths are chosen in a random manner. Therefore, the symmetric solutions (equal cost paths) are broken randomly by choosing the paths in a random manner.

Claims 24 and 25 are argued similarly to claim 1 (see response for claim 1’s argument).

Regarding claims 26-28, the applicant argues that Baum does not teach or suggest switching from an interior gateway protocol to a multi-protocol label-switching traffic engineering protocol. However, Inderieden and Goguen disclose the use of these protocols and Baum discloses the switching of the protocols as shown in the previous rejection.

Claim Objections

2. Claim 1 is objected to because of the following informalities: grammatical problem. Claim 1 recites "said set of constraints associated with said second routing protocol" appears to be a fragment. The passage is understood as "said set of constraints are associated with said second routing protocols".

Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1, 3-4, 7-23 and 26-32 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

5. Claim 1 recites the limitation "said paths" in the second paragraph. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 1 and 7-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Inderieden (US 2004/0006640) in view of Wen (US 2005/0128940).

Inderieden discloses a method of notification to routing protocols of changes to routing information base including the following features.

Regarding claim 1, a method of determining traffic paths between one or more source-destination node pairs in a communication network (see "source to a destination" recited in paragraph [0004]), comprising: starting from a first set of paths between said source-destination node pairs (see "active ("best") route" recited in

paragraph [0007]), determining a second set of paths between said source-destination node pairs (see "new route is provided" recited in paragraph [0007]) taking into account a set of constraints (see "The route with the lowest preference value is considered the best" recited in paragraph [0035]), such that said second set of paths emulates said first set of paths, each of said paths extending from a network interface at a source node to a destination node (as shown in paragraph [0007] and [0035]; all candidate paths are directed to the same source-destination, such that the second path emulates the source and destination of the first path; and that the paths must extend from the network interface of the source to the destination), wherein said first set of paths is related to the use of a first routing protocol and the second set of paths is determined for use with a second routing protocol, different from said first protocol (see "providing a plurality of different routing protocols, each of which provide candidate route…multi-protocol routing architectures" recited in paragraph [0007]; also see exemplary protocols as shown in elements 204-216 in Fig. 2), said set of constraints associated with said second routing protocol (see "each route update has a route "preference" value"…associated with it" recited in paragraph [0035]).

Regarding claim 7, wherein the second set of paths is determined such that the routing using said second routing protocol is similar to the routing using said first routing protocol (see paragraph [0007], which describes using different protocols for selecting routes to the same destination, since the source and the destination is the same, at least the source and destination of the routing determined by the different protocols are similar).

Regarding claim 8, wherein said constraints is related to said second set of paths (see “The route with the lowest preference value is considered the best” recited in paragraph [0035]; wherein the preference value is associated with each of the candidate routes).

Regarding claim 9, wherein said constraints result from network nodes limitations and/or routing protocol constraints related to said second set of paths (see paragraph [0024], which shows that the RIB uses the information provided by each protocol to determine the active route to be used).

Regarding claim 10, wherein said first routing protocol includes an interior gateway protocol (see “IGP” recited in paragraph [0053]).

Regarding claim 13, wherein said second protocol data are routed on pre-determined paths (rejection of claim 1 above, wherein the second protocol data are routed on the second set of paths, wherein the second set of paths have been predetermined as they are sent to the RIB as candidate paths; that is, the candidate routes are determined prior to being selected as the "second set of paths").

Regarding claim 24, a method of calculating traffic paths between one or more source-destination node pairs in a communication network (see "source to a destination” recited in paragraph [0004]), comprising: starting from a first set of paths between said source-destination node pairs (see “active (“best”) route" recited in paragraph [0007]), determining a second set of paths between said source-destination node pairs (see “new route is provided” recited in paragraph [0007]) taking into account a set of constraints (see “The route with the lowest preference value is considered the

best" recited in paragraph [0035]), such that said second set of path is similar to the first set of paths (as shown in paragraph [0007] and [0035]; all candidate paths are directed to the same source-destination, such that the second path emulates the source and destination of the first path); wherein said first set of paths is related to the use of a first routing protocol and the second set of paths is determined for use with a second routing protocol, different from said first protocol (see "providing a plurality of different routing protocols, each of which provide candidate route…multi-protocol routing architectures" recited in paragraph [0007]; also see exemplary protocols as shown in elements 204-216 in Fig. 2), said set of constraints associated with said second routing protocol (see "each route update has a route "preference" value"…associated with it" recited in paragraph [0035]), and each of said paths extending from a network interface at a source node to a destination node (as shown in paragraph [0007] and [0035]; all candidate paths are directed to the same source-destination, such that the second path emulates the source and destination of the first path; and that the paths must extend from the network interface of the source to the destination).

Regarding claim 25, a method of calculating traffic paths between one or more source-destination node pairs in a communication network (see "source to a destination" recited in paragraph [0004]), comprising: starting from a first set of paths between said source-destination node pairs (see "active ("best") route" recited in paragraph [0007]) determined using a first protocol (see "providing a plurality of different routing protocols, each of which provide candidate route…multi-protocol routing architectures" recited in paragraph [0007]; also see exemplary protocols as shown in

elements 204-216 in Fig. 2), determining a second set of paths between said source-destination node pairs (see "new route is provided" recited in paragraph [0007]) for use with a second protocol (see "providing a plurality of different routing protocols, each of which provide candidate route…multi-protocol routing architectures" recited in paragraph [0007]; also see exemplary protocols as shown in elements 204-216 in Fig. 2), each of said paths extending from a network interface at a source node to a destination node (as shown in paragraph [0007] and [0035]; all candidate paths are directed to the same source-destination, such that the second path emulates the source and destination of the first path; and that the paths must extend from the network interface of the source to the destination).

Inderieden does not explicitly disclose the following features: regarding claim 1, wherein said paths in said second set of paths emulate a fraction of traffic carried on said paths in said first set of paths; regarding claim 24, wherein the traffic load of said second set of paths is similar to the first set of paths; regarding claim 25, wherein the load balancing in said first and second routing protocol is similar.

Wen discloses a 1+1 mesh protection method including the following features.

Regarding claim 1, wherein said paths in said second set of paths emulate a fraction of traffic carried on said paths in said first set of paths (see "transmits two copies of traffic across the network on both paths" recited in paragraph [0038]; that is, the candidate routes in Inderieden can be used as the protection path, which is determined to be carry the same traffic, thus emulates the traffic load of the primary path).

Regarding claim 24, wherein the traffic load of said second set of paths is similar to the first set of paths (see "transmits two copies of traffic across the network on both paths" recited in paragraph [0038]; that is, the candidate routes in Inderieden can be used as the protection path, which is determined to be carry the same traffic, thus the traffic load of the primary path and the protection path would be similar).

Regarding claim 25, wherein the load balancing in said first and second routing protocol is similar (see "transmits two copies of traffic across the network on both paths" recited in paragraph [0038]; that is, the candidate routes in Inderieden can be used as the protection path, which is determined to be carry the same traffic, thus the load balancing of the primary path and the protection path would be similar in that the at least the same load is carried).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of Inderieden using features, as taught by Wen, in order to provide protection for the primary path.

9. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Inderieden and Wen as applied to claim 1 above, and further in view of Goringe (US 2003/0043820).

Inderieden and Wen disclose the claimed limitations as shown above.

Inderieden and Wen do not disclose the following features: regarding claim 3, wherein the first set of paths are included in a routing and load model for said source-destination node pairs related to a first routing protocol; regarding claim 4, wherein said

routing and load model takes in to account the network topology, the route configuration resulting from the use of the first routing protocol and/or a selection of source destination node pairs.

Goringe discloses a method to discover IP network topology including the following features.

Regarding claim 3, wherein the first set of paths are included in a routing and load model for said source-destination node pairs related to a first routing protocol (see "logical network topology described by a particular routing protocol…a map or model of the routing topology can be generated" recited in paragraph [0024]).

Regarding claim 4, wherein said routing and load model takes in to account the network topology, the route configuration resulting from the use of the first routing protocol and/or a selection of source destination node pairs (see "logical network topology described by a particular routing protocol…a map or model of the routing topology can be generated" recited in paragraph [0024]).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of Inderieden and Wen using features, as taught by Goringe in order to identify the network routing topology for routing purposes.

10. Claims are 11 and 14 rejected under 35 U.S.C. 103(a) as being unpatentable over Inderieden and Wen as applied to claim 1 above, and further in view of Goguen (US 6,665,273).

Inderieden and Wen disclose the claimed limitations as shown above.

Inderieden and Wen do not disclose the following features: regarding claim 11, wherein said first and/or said second routing protocol applies load balancing; regarding claim 14, wherein said second routing protocol includes a multi-protocol label-switching traffic engineering protocol.

Goguen discloses a method of dynamically adjusting MPLS traffic engineering tunnel bandwidth including the following features.

Regarding claim 11, wherein said first and/or said second routing protocol applies load balancing (see "IGP is load balancing…" recited in column 3, lines 9-10).

Regarding claim 14, wherein said second routing protocol includes a multi-protocol label-switching traffic engineering protocol (see "MPLS TE" recited in column 3, line 35).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of Inderieden and Wen using features, as taught by Goguen, in order to prevent overflowing any single links by balancing the load on each links.

11. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Inderieden and Wen as applied to claim 1 above, and further in view of Wright (US 2006/0039364).

Inderieden and Wen disclose the claimed limitations as shown above.

Inderieden and Wen do not disclose the following features: regarding claim 12, wherein said first routing protocol includes an equal cost multiple paths extension.

Wright discloses a system for policy-enabled communications network including the following features.

Regarding claim 12, wherein said first routing protocol includes an equal cost multiple paths extension (see “ECMP…can embed the load balancing optimization problem in the IGP implementation" Recited in paragraph [0114]).

It would have been obvious to one of the ordinary skill in art at the time of the invention to modify the system of Inderieden and Wen using features, as taught by Wright, in order to in order to optimize the load balancing of the IGP implementation (see Wright, paragraph [0114]).

12. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Inderieden and Wen as applied to claim 1 above, and further in view of Harshavardhana (US 2001/0012298).

Inderieden and Wen disclose the claimed limitations as shown above.

Inderieden and Wen do not disclose the following features: regarding claim 15, wherein said constraints comprise a maximum number of paths between each source-destination node pair.

Harshavardhana discloses a method for routing signals including the following features.

Regarding claim 15, wherein said constraints comprise a maximum number of paths between each source-destination node pair (see “a pre-specified parameter may

be used to limit the maximum number of paths which can be stored in memory for each source-destination…" recited in paragraph [0029]).

It would have been obvious to one of the ordinary skill in art at the time of the invention to modify the system of Inderieden and Wen using features, as taught by Harshavardhana, in order to in order to ensure the node constraint is not violated.

13. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Inderieden and Wen as applied to claim 1 above, and further in view of Prager (US 2007/0286201).

Inderieden and Wen disclose the claimed limitations as shown above.

Inderieden and Wen do not disclose the following features: regarding claim 16, wherein said constraints comprise that the traffic between a particular source-destination node pair is load balanced such that the share of traffic along any path is a fraction with constrained integer numerator and denominator.

Prager discloses a system for parallel connection selection in a communication network including the following features.

Regarding claim 16, wherein said constraints comprise that the traffic between a particular source-destination node pair is load balanced such that the share of traffic along any path is a fraction with constrained integer numerator and denominator (see "the bandwidth load balance value may be expressed a ratio of a numerator and a denominator" recited in paragraph [0022]; and it is well known in math to express ratio

with numerator and denominator can always be represented using integer numerator and denominators).

It would have been obvious to one of the ordinary skill in art at the time of the invention to modify the system of Inderieden and Wen using features, as taught by Prager, in order to perform load balancing of the bandwidth.

14. Claim 17-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Inderieden and Wen as applied to claim1 above, and further in view of Gawlick (US 5,519,836).

Inderieden and Wen disclose the claimed limitations as shown above.

Inderieden and Wen do not disclose the following features: regarding claim 17, wherein a search technique is used to determine said second set of paths; Regarding claim 18, wherein one of the following search techniques are used to determine said second set of paths: “generate and test” search algorithm, constraint programming and/or mathematical programming; regarding claim 19, wherein an optimal search algorithm is used; regarding claim 20, wherein a heuristic search algorithm is used.

Gawlick discloses a method of online permanent virtual circuit routing including the following features.

Regarding claim 17, wherein a search technique is used (see “heuristic in which each possible alternative path...is examined…" recited in column 5, line 58 to column 6, line 8) to determine said second set of paths (see Inderieden as used in the rejection of claim 1, wherein the path to be used is determined after a comparison of the paths).

Regarding claim 18, wherein one of the following search techniques are used to determine said second set of paths: “generate and test” search algorithm (see “heuristic in which each possible alternative path...is examined…" recited in column 5, line 58 to column 6, line 8; that is, the heuristic generates and test each possible alternative path to reduce the cost of routing), constraint programming and/or mathematical programming.

Regarding claim 19, wherein an optimal search algorithm is used (see “heuristic in which each possible alternative path...is examined…" recited in column 5, line 58 to column 6, line 8; that is, the heuristic searches for the path with the lowest cost, which would be the optimal path).

Regarding claim 20, the method wherein a heuristic search algorithm is used (see “heuristic in which each possible alternative path...is examined…" recited in column 5, line 58 to column 6, line 8).

It would have been obvious to one of the ordinary skill in art at the time of the invention to modify the system of Inderieden and Wen using features, as taught by Gawlick, in order to route through the path with the lowest cost.

15. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Inderieden and Wen as applied to claim 1 above, and further in view of Beshai (US 2004/0202111).

Inderieden and Wen disclose the claimed limitations as shown above.

Inderieden and Wen do not disclose the following features: regarding claim 21, the method wherein each source-destination node pair is treated independently.

Beshai discloses a method of courteous routing including the following features.

Regarding claim 21, the method wherein each source-destination node pair is treated independently (see "independent route sets have been determined for each node-pair (source and destination)" recited in paragraph [0045]).

It would have been obvious to one of the ordinary skill in art at the time of the invention to modify the system of Inderieden and Wen using features, as taught by Beshai, in order to produce a routing table of routes for each node pairs.

16. Claims 22-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Inderieden, Wen and Beshai as applied to claim 21 above, and further in view of Dull (US 2005/0018693).

Inderieden, Wen and Beshai disclose the claimed limitations as shown above.

Inderieden, Wen and Beshai do not disclose the following features: regarding claim 22, the method comprises a method of avoiding a system a systematic bias for particular paths; regarding claim 23, wherein ties between symmetric solutions are broken randomly.

Dull discloses a fast filtering process for a highly integrated network device including the following features.

Regarding claim 22, the method comprises a method of avoiding a system a systematic bias for particular paths (see "equal cost paths to be chosen in a random

manner" recited in paragraph [0039]; the random selection avoids bias with the nature of its randomness).

Regarding claim 23, wherein ties between symmetric solutions are broken randomly (see "equal cost paths to be chosen in a random manner" recited in paragraph [0039]; the random selection prevents any symmetric solutions; therefore it is considered to be randomly breaking any symmetric solutions).

It would have been obvious to one of the ordinary skill in art at the time of the invention to modify the system of Inderieden, Wen and Beshai using features, as taught by Dull, in order to prevent overloading a specific path.

17. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Inderieden and Wen as applied to claim 1 above, and further in view of Baum (US 2007/012488) and Goguen.

Inderieden and Wen disclose the claimed limitations as shown above.

Inderieden also discloses the following features.

Regarding claim 26, where the first set of paths is related to the use of a first routing protocol, where the second set of paths is determined for sue with a second routing protocol (see "providing a plurality of different routing protocols, each of which provide candidate route…multi-protocol routing architectures" recited in paragraph [0007]; also see exemplary protocols as shown in elements 204-216 in Fig. 2), said first protocol comprises an interior gateway protocol (see "IGP" recited in paragraph [0053])

Inderieden and Wen not disclose the following features: regarding claim 26, a method of operating a communication network, comprising switching at least some network traffic from a first routing protocol to a second routing protocol, wherein the method includes a method of calculating traffic paths according to claim 1, and said second routing protocol comprises a multi-protocol label-switching traffic engineering protocol.

Baum discloses vertical services integration enabled content distribution mechanism including the following features.

Regarding claim 26, a method of operating a communication network, comprising switching at least some network traffic from a first routing protocol to a second routing protocol (see “Fig. 5 migration to other types of...routing protocols" recited in paragraph [0059]; and see Fig. 5, where a number of routing protocols are shown including Ethernet, Frame Relay and etc.), wherein the method includes a method of calculating traffic paths according to claim 1 (see rejection of claim 1).

Goguen discloses a method of dynamically adjusting MPLS traffic engineering tunnel bandwidth including the following features.

Regarding claim 26, wherein said second routing protocol includes a multi-protocol label-switching traffic engineering protocol (see “MPLS TE” recited in column 3, line 35).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of Inderieden and Wen using features, as taught by

Goguen and Baum, in order to prevent overflowing any single links by balancing the load on each links and in order to increase flexibility in routing protocol usage.

18. Claim 27 rejected under 35 U.S.C. 103(a) as being unpatentable over Inderieden and Wen as applied to claim 1 above, and further in view of Klinker (US 2004/0249971).

Inderieden and Wen disclose the claimed limitations as shown above.

Inderieden and Wen do not disclose the following features: regarding claim 27, a method of measuring traffic between a plurality of source and destination nodes in a communication network comprising the method according to claim 1.

Klinker discloses a method for providing dynamic domain name system including the following features.

Regarding claim 27, a method of measuring traffic between a plurality of source and destination nodes in a communication network (see “measuring inbound traffic performance from each of the identified sources to the destination address” recited in paragraph [0023]) comprising the method according to claim 1 (see rejection to claim 1 using Inderieden and Wen as shown above).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of Inderieden and Wen using features, as taught by Klinker, in order to monitor the performance of the network.

19. Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over Inderieden, Wen, Goguen and Baum as applied to claim 26 above, and further in view of Charny (US 2004/0052207).

Inderieden, Wen, Goguen and Baum disclose the claimed limitations as shown above.

Inderieden, Wen, Goguen and Baum do not disclose the following features: regarding claim 28, wherein at least some of the traffic is protected using secondary tunnels.

Charny discloses a method of load balancing for fast reroute backup tunnels including the following features.

Regarding claim 28, wherein at least some of the traffic is protected using secondary tunnels (see "backup tunnel may protect multiple parallel paths…" recited in the abstract).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of Inderieden, Wen, Goguen and Baum using features, as taught by Charny, in order to protect system from link failure.

20. Claims 29, 31 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Inderieden and Wen as applied to claim 1 above, and further in view of Charny.

Inderieden and Wen disclose the claimed limitations as shown above.

Inderieden and Wen do not disclose the following features: regarding claim 29, a method of providing secondary paths for a communication network, comprising the

method of claim 1; regarding claim 31, wherein part of the remaining link capacity is used for the secondary paths; regarding claim 32, wherein the secondary paths are determined for the non-load balanced case.

Charny discloses a method of load balancing for fast reroute backup tunnels including the following features.

Regarding claim 29, a method of providing secondary paths for a communication network, (see “backup tunnel may protect multiple parallel paths…” recited in the abstract), comprising the method of claim 1 (see rejection of claim 1).

Regarding claim 31, wherein part of the remaining link capacity is used for the secondary paths (see “backup tunnels having sufficient remaining bandwidth to protect the LSP..." recited in paragraph [0054]).

Regarding claim 32, wherein the secondary paths are determined for the non-load balanced case (see “backup tunnel may protect multiple parallel paths…” recited in the abstract; that is, the secondary paths are used for backup purposes and does not have anything to do with the load balancing of the primary paths).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of Inderieden and Wen using features, as taught by Charny, in order to protect system from link failure.

21. Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Inderieden, Wen and Charny as applied to claim 29 above, and further in view of Cortez (US 7,130,262).

Inderieden, Wen and Charny disclose the claimed limitations as shown above.

Inderieden, Wen and Charny do not disclose the following features: regarding claim 30, wherein a measured maximum link load is used as the primary bandwidth for each link.

Cortez discloses a method for providing alternative link weights for failed network paths including the following features.

Regarding claim 30, wherein a measured maximum link load is used as the primary bandwidth for each link (see "primary service path…maximum available capacity" recited in the abstract; that is, the system finds a path with the maximum bandwidth to be used as the primary data path when restoration is required).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of Inderieden, Wen and Charny using features, as taught by Cortez, in order to provide optimal bandwidth to the users.

Conclusion

22. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JUTAI KAO whose telephone number is (571)272-9719. The examiner can normally be reached on Monday ~Friday 7:30 AM ~5:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kwang Yao can be reached on (571)272-3182. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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